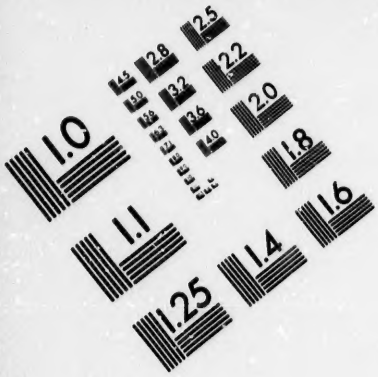

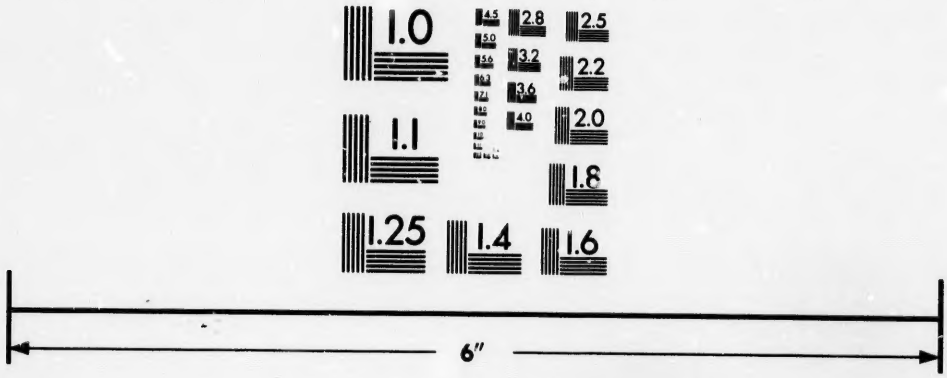

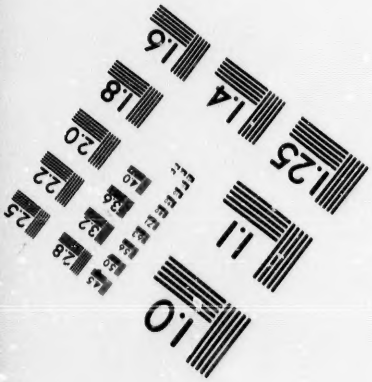

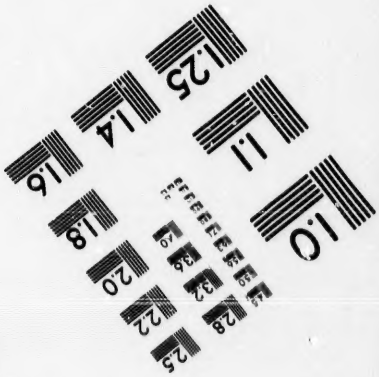

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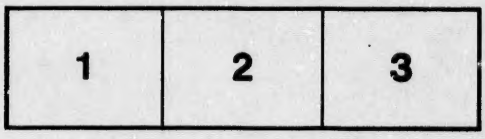

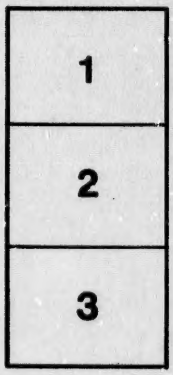

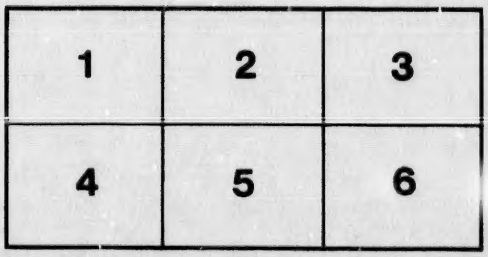

Dr. Bell
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J. C. H.

THE GREAT CENTRE

AN ASTRONOMICAL STUDY.

HAMILTON.

1892
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THE GREAT CENTRE; AN ASTRONOMICAL STUDY.

By J. C. Hamilton, LL.B.

(Read 6th February, 1892.)

The paper opened with a short review of the history of astronomy. With reference to the special branch of the subject, it summed up the teachings of Pythagoras, as to harmony in the movement of the spheres, and the central fire of Philolaus, around which the heavenly bodies were supposed to perform a circling dance. Farthest off were the fixed stars, then in order the five planets the moon and the earth.

The beautiful theory of the harmony of the spheres was not lost sight of by our great poet, as is seen in the famous dialogue between Lorenzo and Jessica, (Merchant of Venice, Act 5, Sc. I.)

Reference was made to the theory of the Great Centre by other poets, such as Edgar A. Poe, in "Eureka"; and Addison, calling it the "Heaven of Heavens," in No. 580 of the Spectator; Tennyson's last verse of "In Memoriam"; and Dryden's lines:

> "This place; the highest mansion of the sky
> I'll call the Palace of the Deity."

The "Mystery of the Seven Stars" was then discussed. As satellites revolve around planets and planets around suns, so the solar system moves around a grand centre. This holds good in regard to the constellations and known systems of the universe in an inconceivably magnificent extent. What that centre is may be asked. It was shown that strange reference to the Pleiades was made by Job; that the priests of Belus noted their rising and setting two thousand years before Christ, and astronomers point to this region as one of amazing majesty. The Greeks called them Pleiades and said they were the seven daughters of Atlas and Pleiône, of whom all but one, Meropé, were united to immortal gods and placed in heaven after death. Their names are Alcyoné, Meropé, Maia, Electra, Taygeta, Steropé and Celeno. The Greek name for the group has its origin ascribed sometimes to the word signifying to sail, as their rising was looked for by the sailors of the Mediterranean; but another derivation makes them the heavenly doves.

Our Mohawks have a legend as to the seven stars in which seven brothers who unfortunately fell in love with the same fair squaw, were translated to heaven on her untimely death.* The Chippewas of Lake

— · —

x This legend told me by Dr. Oronhyatekha

Superior, with less romance, called the Pleiades *Madodisson* or the sweating stones, referring to the hot stones arranged in a group in their vapour baths.

Only six Pleiades are usually seen, though as many as sixteen have been made out by keen observers without artificial aid (Mr. A. M. Clarke's article on *The Pleiades, in Nature*, April 15, 1886, Vol. 33, p. 561.) Hipparchus mentions the possibility of discovering a seventh member of the group, Ovid too, "Quae septem dici, sex tamen esse solent."

The story of the "Lost Pleiad" is immeasurably antique and cosmopolitan as a myth or a tradition. The Pleiades are included in the great constellation of the Bull.

They are with us a winter constellation. Their position is best found by following with the eye the line made by the belt of Orion northward past Aldeberan and the Hyades.

Alcyoné is of the third magnitude, but was not 1750 years ago the lucida of the collection. The leading place was first assigned to Alcyoné by Tycho Brahe in the sixteenth century. Galileo detected nearly fifty stars in the Pleiades. M. C. Wolf, in 1875, at Paris, made a chart which included stars to the fourteenth magnitude to the number of six hundred and twenty-five, contained in a rectangle 135′ × 90,′ in which Alcyoné occupies a nearly central position. By the photographic object glass, stars of the Pleiades down to the seventeenth magnitude have been deciphered, and more than one thousand four hundred have been placed on the photographic retina. X

The Pleiades are immensely far off. None of them has any sensible parallax, nor are we informed of their intrinsic lustre, mutual distance or gravitating mass. Recent investigations of the structure of the Pleiades group shew a surprising miniature sidereal system, the richness and variety of which bewilder theoretical conceptions, and recall as anamolous the accumulated wonders of the Megallanic clouds. Groups are collected within the main groups, systems revolve apart, the subordination of which to the laws of a general federative union, leaves their internal liberty of movement unshackled

The furthest of the suns forming the group are seventy-one times as distant from us as from the centre of their own system, consequently Alcyoné blazes upon them with five thousand times the brilliancy of Sirius. "It would seem," says Mr. Clark, "a star rather than a sun."

A learned Canadian, of eminent name and lineage, Mr. R. G. Halibur-

X As many as 2326 was found see Agnes M. Clarke's book "The system of the Stars".

ton, Q.C., F.R.G.S., now residing abroad, has made a study of primitive traditions as to the Pleiades. He has discovered a yearly calendar regulated by these stars. He has become known in connection with the so-called "Pleiades Year." A work published on the Continent "Die Pleiaden," has been dedicated to him as the pioneer in this interesting field of research, and Mr. Piazzi Smith, late Astronomer Royal of Scotland, borrowed largely from Mr. Haliburton in his book on the Great Pyramid.

Mr. Haliburton has long been promising to embody the result of his investigations in book shape. Failing this, I am, through correspondence and reference to his published essays, able to give some of the facts and observations. And so, without too much anticipating the promised story, which we will hail with pleasure, I will cull from the rich supply he lays before us.

In his pamphlet entitled "New Materials for the History of Man, 1863," Mr. Haliburton shows that the Festival of the Dead was, in ancient times, regulated by the Pleiades. The memory of the Deluge was by the Mexicans, the Egyptians and the Jews associated with the same time of the year—the middle of October. Among the Aztecs, as well as the Egyptians, the Deluge was commemorated at the beginning of the year of the Pleiades, that is when that constellation culminated at midnight The Deluge and time were considered synonymous by the ancients. In Europe the last day of October and first and second of November are designated as the festivals of *All Hallowe'en*, *All Souls* and *All Saints*. They are connected with the commemorations known amongst all nations as the Festival of the Dead or the Feast of Ancestors, and this reminds us of the Voyage of Ulysses to the Gardens of Alkynoos, the abodes of the dead. . . . The Pleiades long retained their name Hesperides. Stars of the Evening, even when they had ceased to regulate the year, when their pleasant influences had been forgotten. They were also by the Latins called Vergiliæ or harbingers of the spring; and by the Hebrews *Chimah*, or the *Cluster or group of Stars*. The Pleiades gain twenty-eight days on the tropical year in every two thousand years, Hence the Pleiades that now culminate at midnight on 17th November, did so in October two thousand years ago. The Bull constellation including the Alcyonic group, bore the name Tar, Ataur and Attyr in Egypt. Hence the Latin *Taurus*. The year of the Tar and stars of Attaur, have left their impress on the very mountains of Great Britain. Many a hill is known as a Tor. Our ancestors raised the "Seven Altars" on these hills to the stars of the Tar, and to this day the pleasant influence of the Pleiades, commemorated by Job and celebrated by

Australian savages, is still lingering in Britain under the popular traditions as to the good King Arthur. It is worthy of note that the name of this king meant in Egypt a hill, (Bunsen's Egypt, I., 465.)

The era when the Pleiades left their impress on the calendars and traditions of nations, must, says Haliburton, in *Nature*, Vol. 25. 100, be very remote, so much so that such researches are like investigations into the fossils that tell of organisms that lived in a world and breathed an atmosphere different from our own. He found a tradition on the African Gold Coast, that the Pleiades are young women, six of whom are very beautiful, but the seventh is so plain that she conceals herself from sight.

Some tribes of the Australians dance in honour of the Pleiades, because "they are good to the black fellows." The negroes too, say "these stars are good to the darkies." The natives of both North and South America regard the Pleiades as beneficent stars, and dance in their honour. M. Mädler, of Dorpât, in 1846 developed the theory that Alcyoné, the lucida of the cluster, is the centre of gravity of the solar system, the luminous hinge around which our sun and the planets move through space. The theory had been mooted by Wright in 1750, and Lucretius had some fanciful notion as to our system revolving around a common centre: Lib. 1, de rerum Natura. "The theory of Mädler, that Alcyoné, the brightest of the group is the central sun of the universe is most interesting," says Haliburton, on account of the fact that such was the actual belief of early ages. "The ancients in very remote ages undoubtedly believed that it was the centre of the universe, and that Paradise the primeval home of our race and the abode of the Deity, and of the spirits of the dead, was in the Pleiades, traces of which ideas we even find among savages."

With the Pleiades two sacred birds were connected. In Samoa there is a sacred bird called Manu-lii, the bird of the Pleiades. The Hindoos believed that Brahma came from an egg. The Greeks had similar traditions; Castor and Pollux sprang from an egg. So also Semiramis, and she was brooded over by a peliad or dove.

From Britain to Japan these stars are popularly known as the "Hen and Her Chickens," and the "Hen-Coop." In Mexico the Kingfisher was a sacred bird; so with the Greeks it was called the Halcyon, the bird of Alcyoné or Paradise; and the Halcyon days were the summer days at the end of autumn, which we should now render heavenly days. Mr Haliburton found that, among the Brahmins of Tyroloc, the name of November was *Kartica*, the month of the Pleiades. In Polynesia there was a year regulated by the rising of the Pleiades at the sunset, and their

being visible all night long. He also found a three days' feast observed in Australia in honour of the Pleiades, and traces of the primitive Pleiades calendar he has discovered existing all over the world. These stars are apparently six in number yet among civilized and savage races in Europe, in India, China, Japan, Africa and America this diminutive group is not merely regarded as seven stars, but what is more surprising, as "The Seven Stars," though the far brighter stars of the Great Bear might seem to deserve the title. In the Feast of Tabernacles, the Berber tribes build their temporary tents with a hole at the top, in order that the young men being instructed, may see the Pleiades passing overhead. The Jews were found to have the same custom. "We can now understand," says Haliburton, "the vestiges in Egypt of a popular belief that the Pleiades are in some way connected with the Great Pyramid, the existence of which was observed with feelings of surprise by Prof Piazzi Smith."

Colonel Vyse is credited with noticing this phenomenon when making researches in Egypt some years since. Six of the pyramids at Gizeh have openings facing north, leading to straight passages which descend at inclinations of from 26° to 28°, the direction being parallel to the meridian. A person standing at the bottom and looking up, would have seen the Pleiades passing overhead when the Great Pyramid was built in 2170 B.C. Prof. P. Smith suggests that its seven chambers commemorated the seven Pleiades.

The Berbers of Morocco had a name for Alcyoné which was given because they said Paradise is there, and the Pleiades are the centre of all things. In Sahara are ancient mosques and temples where the year is still regulated thus, there being a tube from the top of the building, small above and larger below, through which the southing of these stars is observed.

"I am persuaded," says Haliburton, "that the day is coming when the learned will admit that these stars are the 'Central Sun' of the religious calendars, myths, traditions and symbolism of early ages, an era however so marvellously remote that investigations respecting it bear the same relation to the study of anthropology and to the science of religion, that paleontology does to natural history."

The essayist said in concluding: We have now reached as far in our enquiry as time will permit. It is admitted that it is still one of theory and speculation in advance of demonstrative and practical astronomy. Among objections to the selection of Alcyoné as Stellar Queen, may be that she is not of first astronomical rank, but of the third magnitude, while all the

others of the group are of lesser apparent proportions. Some may suggest the great Aldeberan or Sirius the immense central sun, or perhaps Arcturus, with a diameter exceeding ninety millions of miles. Could he be placed between our orb and the sun, he would fill nearly all the intervening space. Yet as we have seen, the old Chaldeans, the Egyptians, the Berbers of Morocco, savage myths and folk lore, Job and the poets point to the same great centre. The inference is boldly drawn that a spot so comparatively small and insignificant as our planet, or even the solar system compressed into one great mass, cannot with reason be regarded as the future place of bliss. If in that are to be gathered the mighty intelligences and the innumerable redeemed of all ages, the argument is advanced that Alcyoné, the great lucida of the group, the physical centre of the universe, may be also its spiritual and divine centre.

This, as we have seen, has some weight with men of science, but is mainly found as yet in poetic musings. Such may be included in the Laureate's conception of

> "One far off divine event,
> To which the whole creation moves."

The following lines were suggested by a discussion of interest which took place in the columns of the *New York Observer* on the Locality of Heaven. They were published in that paper some years ago:

> "May God forgive the child of dust,
> Who seeks to know, where faith should trust."

ALCYONÉ.

Where is the star, Alcyoné?
Mark where Orion points the way;
Find where the Pleiads gently sway.
All worlds, and systems, as they roll,
Where dwells the Elemental soul,
Where nights have ceased and light to bless
Beams from the Sun of Righteousness:
There is the star Alcyoné!

Who point us to Alcyoné?
The leader who on Pisgah stood,
And saw fair lands beyond the flood,
They who, in ancient, classic years,
Proclaimed the harmony of spheres,
The prophet's word, the poet's eye,
The flowers below, the stars on high,
All point us to Alcyoné.

Who reigns in far Alcyoné?
Who rules the waves and thunder loud,
Who led in pillar and in cloud,
Who bids the starry systems burn,
The comets wheel, and planets turn,
Whose word made light, whose arm is might
Archangels bow when in His sight:
He reigns in great Alcyoné.

But while thy towers, Alcyoné,
With jealous guard Jehovah keeps,
The frailest fly, or thing that creeps
On dungeon wall, can never fall,
Unless our Heavenly Father call;
Be this, then, our sustaining trust,
And, though in death laid dust to dust,
These eyes shall see Alcyoné.

What learn they in Alcyoné?
Of Him to whom wise men from far
Came, guided by the glorious star;
They find high mansions where is room
For all who through the Saviour come;
On hidden way and darkened page,
Here unrevealed to saint and sage,
Thy light shall shine, Alcyoné.

In bowers of blest Alcyoné,
Bright choirs will sing, in harmony,
The story of the One in Three,
The Three in One, the great Æon,
The Pure who did for sins atone,
The blind shall see, the dumb make known
Their joy and rapture round the throne
Of Him who rules Alcyoné.

Who now possess Alcyoné?
All they who for Emmanuel's fame,
Have borne the cross, the toil, the shame;
All they who, in the precious fountain,

Have washed their robes from every stain ;
All they who've climbed the glorious mountain,
Found there the King who once was slain,
And sought, with Him, Alcyoné.

When shall we reach Alcyoné ?
When the last trumpet loud shall call,
The just shall rise, the ungodly fall ;
When earth and seas shall roll in flame,
When His high name, with glad acclaim,
Re-echoes loud through all the spheres,
And His advancing car appears,
Then may we reach Alcyoné !

As falls eclipse, Alcyoné,
On mariners o'er ocean tossed,
So, when thy heavenly light is lost,
Dark fear and doubt tempestuous roll,
And threaten to engulf my soul ;
But, as I cry, comes One to save,
He breaks the cloud, He walks the wave.
And leads me to Alcyoné.

In thy bright realms, Alcyoné,
No tempest's jar, no sound of war,
Nor funeral bell our peace will mar ;
Those whom, while here, we hold most dear,
We'll meet—no parting hour to fear ;
In thee shall faith be verified,
In thee God's love be magnified,
Home of true bliss, Alcyoné.

Alcyoné ! Alcyoné !
While here imprisoned far from thee,
My soul pants, longing to be free ;
O may a cheering heavenly ray,
Change fear to joy, change gloom to day,
Till, from this melting orb, I spring,
And, passing through thy bright gates, sing
God's praises in Alcyoné.

J. E. H.

Toronto.